



## IRF5 gene

interferon regulatory factor 5

### Normal Function

The protein produced from the *IRF5* gene, called interferon regulatory factor 5 (IRF5), acts as a transcription factor, which means that it attaches (binds) to specific regions of DNA and helps control the activity of certain genes. When a virus is recognized in the cell, the *IRF5* gene is turned on (activated), which leads to the production of IRF5 protein. The protein binds to specific regions of DNA that regulate the activity of genes that produce interferons and other cytokines. Cytokines are proteins that help fight infection by promoting inflammation and regulating the activity of immune system cells. In particular, interferons control the activity of genes that help block the replication of viruses, and they stimulate the activity of certain immune system cells known as natural killer cells.

### Health Conditions Related to Genetic Changes

rheumatoid arthritis

systemic lupus erythematosus

systemic scleroderma

Several normal variations in the *IRF5* gene have been associated with an increased risk of developing systemic scleroderma, which is an autoimmune disorder characterized by the buildup of scar tissue (fibrosis) in the skin and internal organs. Although the *IRF5* gene is known to stimulate the immune system in response to viruses, it is unknown how the gene variations contribute to the increased risk of systemic scleroderma. Researchers believe that a combination of genetic and environmental factors may play a role in development of the condition.

ulcerative colitis

autoimmune disorders

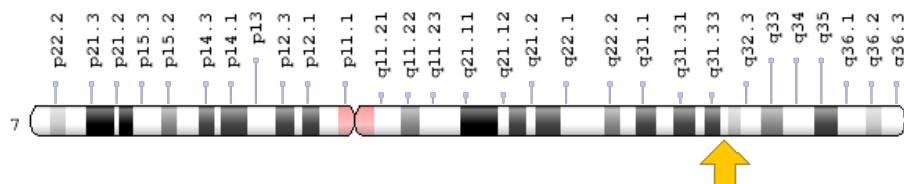
Studies have associated normal variations in the *IRF5* gene with an increased risk of several autoimmune disorders. Autoimmune disorders occur when the immune system malfunctions and attacks the body's tissues and organs. These disorders include systemic lupus erythematosus, Sjögren syndrome, and rheumatoid arthritis.

There is some evidence that certain variations of the *IRF5* gene are associated with increased activity of the gene and elevated cytokines. However, it is unknown what role, if any, these effects play in the increased risk of autoimmune disorders. Researchers believe that a combination of genetic and environmental factors may contribute to the development of these conditions.

### Chromosomal Location

Cytogenetic Location: 7q32.1, which is the long (q) arm of chromosome 7 at position 32.1

Molecular Location: base pairs 128,937,737 to 128,950,042 on chromosome 7 (Homo sapiens Annotation Release 108, GRCh38.p7) (NCBI)



Credit: Genome Decoration Page/NCBI

### Other Names for This Gene

- IRF-5
- IRF5\_HUMAN
- SLEB10

### Additional Information & Resources

#### Educational Resources

- Immunobiology: The Immune System in Health and Disease (5th edition, 2001): Interferons Induced by Viral Infections Make Several Contributions to Host Defense  
<https://www.ncbi.nlm.nih.gov/books/NBK27122/#A219>

#### Scientific Articles on PubMed

- PubMed  
<https://www.ncbi.nlm.nih.gov/pubmed?term=%28%28IRF5%5BTIAB%5D%29+OR+%28interferon+regulatory+factor+5%5BTIAB%5D%29%29+AND+%28%28Genes%5BMH%5D%29+OR+%28Genetic+Phenomena%5BMH%5D%29%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+720+days%22%5Bdp%5D>

## OMIM

- INTERFERON REGULATORY FACTOR 5  
<http://omim.org/entry/607218>
- RHEUMATOID ARTHRITIS  
<http://omim.org/entry/180300>
- SJOGREN SYNDROME  
<http://omim.org/entry/270150>
- SYSTEMIC LUPUS ERYTHEMATOSUS, SUSCEPTIBILITY TO, 10  
<http://omim.org/entry/612251>

## Research Resources

- Atlas of Genetics and Cytogenetics in Oncology and Haematology  
[http://atlasgeneticsoncology.org/Genes/GC\\_IRF5.html](http://atlasgeneticsoncology.org/Genes/GC_IRF5.html)
- ClinVar  
<https://www.ncbi.nlm.nih.gov/clinvar?term=IRF5%5Bgene%5D>
- HGNC Gene Symbol Report  
[http://www.genenames.org/cgi-bin/gene\\_symbol\\_report?q=data/hgnc\\_data.php&hgnc\\_id=6120](http://www.genenames.org/cgi-bin/gene_symbol_report?q=data/hgnc_data.php&hgnc_id=6120)
- NCBI Gene  
<https://www.ncbi.nlm.nih.gov/gene/3663>
- UniProt  
<http://www.uniprot.org/uniprot/Q13568>

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